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THE FUTURE OF ARIZONA'S AGRICULTURE

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Arizona's Future Dependent Upon the Development of Its Agriculture—Subtropical Fruits and Truck Crops to Furnish Greatest Sources for Future Revenue

ARIZONA'S agriculture, in common with southwestern agriculture in general, rests upon a future that is as assured as is the further growth and development of our State. Arizona's hope is in her agriculture and her continued prosperity and development will depend largely upon this industry. When fully developed our agriculture will provide homes and continuous employment for a half-million people, and the manufacture of the raw or unfinished products from these farms into finished products will occupy the time of another quarter-million people. Large areas of land will have to be surveyed and leveled for irrigation, power lines will have to be built, complicated irrigation systems planned, and reservoirs for holding large amounts of water for irrigation constructed. This will require a small army of electrical, civil, and irrigation engineers to construct and maintain. Thus it is that agriculture utilizes the time of a large number of persons of widely different interests. We have no other great natural resources upon which to draw. Our copper mines noted the country over —we produce more copper than any other State—represent about 50 per cent of our taxable wealth. It is generally believed that our mines have reached their maximum development and that soon they will begin gradually to decline. This is the history of all mining industries. We have as yet no coal mines nor oil wells.

Our climate is as good, but perhaps no better than are the climates of other southwestern States. Our grazing ranges are not as productive as are those of some other southwestern commonwealths, and our forest resources naturally are limited by the small area of our timber-bearing lands.

In building our State and in laying a permanent foundation for its future greatness, we must turn, therefore, to agriculture as our greatest and most enduring natural resource. Under our conditions agriculture is capable of almost unlimited development. In this connection it may be noted that following a remarkable development of the mining industry in Arizona, in which several large copper mines were discovered and brought into production, the total value of the minerals in 1925 was less than $115,000,000, whereas with but three-fourths of one per cent of the land under cultivation, the total value of the crops for that same year was nearly $50,000,000.

It is for these reasons that as a State, Arizona is vitally interested in the development and conservation of the water and power resources of the Colorado River, and that in this development a just portion of the water and power shall come to Arizona, otherwise vast areas of our fertile, almost frostless, mesa lands suitable for growing such crops as cantaloupes,

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winter lettuce and cauliflower, citrus fruits, dates, figs, grapes, and olives, besides grains and alfalfa, must forever remain uncultivated and unproductive.

Southwestern agriculture is different from the agriculture of other parts of our country. It is an irrigation agriculture in an arid region with mild winters, long hot summers, maximum sunshine, and sparse and uncertain rainfall. Southwestern soils are generally deficient in humus, nitrogen, and available phosphates. They differ widely in character, even within small areas on the same farm. Under cultivation, often it is necessary to treat them quite differently. Evaporation of moisture from their surfaces is very rapid in summer.

Irrigation is necessary and this requires careful leveling of the land by borders or preparing it for irrigation by other means, construction of permanent irrigation ditches and systems, and a practical knowledge on the part of the farmer of agricultural engineering, and alkali, irrigation, and soil problems. On account of the above-mentioned conditions, farming or "ranching" in the Southwest is a profession and requires a practical and a scientific background. While irrigation is probably the oldest kind of agriculture in the world, it is a new idea in American agriculture, and has introduced many new problems for the chemist and soil physicist. It may be said truthfully that there is only one outstanding example in the world of a permanent irrigation project that has endured the test of time. For this reason careful attention is being given by the Arizona Experiment Station to a study of alkali, irrigation, and soil problems in an effort to make our agriculture permanent.

On account of having to develop irrigation water supplies, build irrigation systems, and level the land incident to irrigation, overhead expense of southwestern agriculture is high. This necessitates the most careful management and clear thinking in our agricultural work. On account of this high overhead expense, it is impossible for southwestern agriculture to compete with the agriculture of the central and northern States in the production of their staple crops. It is doubtful whether corn, oats, and barley can be grown profitably in Arizona with irrigation, except perhaps as rotation crops, in comparison with similar grain crops in the northern states. Pork cannot be produced in Arizona in competition with corn-fed pork from Iowa and Illinois. It does not seem that short-staple cotton can be grown profitably in southern Arizona in competition with short-staple cotton grown in Texas and in the southern states. It is evident, therefore, that irrigation agriculture in the Southwest will not be in competition with the agriculture of the central and northern states.

Arizona's agriculture is extremely diversified on account of our widely different altitudes and different soil and climatic conditions. In addition to the crops and fruits that have already been mentioned and that are being grown successfully, it includes the growing of such others as watermelons, chili, sweet potatoes, and green peas, such deciduous fruits and nuts as apricots, peaches, pears, plums, almonds and pecans, the various cereals including corn, milo, and hegari, also alfalfa and long and short-staple cotton. Hundreds of thousands of cattle, sheep, and goats graze on our desert ranges and the dairy and poultry industries are well established and developing rapidly. The feeding of cattle and lambs in the Salt River and Yuma valleys is becoming an established industry.

Arizona's agriculture is becoming rapidly defined. In the past it has included the growing of many crops that were not profitable. Because of its soil-building properties, alfalfa is our basic crop and will always be grown on a considerable scale. It is valuable for feed and as a cash crop. Good cultural practice and care are necessary to grow alfalfa hay on the same land for several years.

With good culture and rotation with alfalfa good yields of long-staple cotton can be grown on our better valley soils. Long-staple cotton requires more skill to grow than does short-staple cotton, and generally it is more profitable. It succeeds best only in our warmer irrigated valleys with long growing seasons and it appears to be better suited to our climatic conditions than is short-staple cotton.

Being more drought and heat-resistant, the grain sorghums are better suited to our climatic conditions than is corn, which crop they have largely displaced. They are harder than corn on soils, but this is only a temporary condition and soon disappears. As silage crops, certain varieties of sorghums yield considerably heavier than does corn or even hegari.

Wheat is grown mostly as a rotation crop, and farmers can afford to grow only a heavy-yielding variety which with good culture will have a high protein content. On good land with proper cultivation one should grow 35 bushels per acre. The Agricultural Experiment Station has developed a variety of wheat known as Hard Baart, which it is felt can be grown profitably in the warmer irrigated valleys on southern Arizona.

Truck gardening is rapidly becoming an established industry in southern Arizona. Cantaloupes for the early summer season, and head lettuce for the late fall, winter, and spring months are two crops that are already being grown on a considerable scale. Such other vegetables as green peas, cauliflower, spinach, cabbage and asparagus promise well to become important winter or early spring truck crops.

The growing of high-quality subtropical fruits in our warm irrigated valleys in southern and western Arizona will become ultimately a very important consideration. Among these are several varieties of dates, grapefruits, navel oranges, and early Thompson Seedless grapes which are already being grown commercially. Figs, olives, and pecans are also very promising. These crops are well suited to our soil and climatic conditions and give large returns. Thus it is that Arizona's agriculture is becoming rather specialized and distinctive.

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FARM ACCOUNTS

Farming is, to a great extent, rather an unorganized business, especially from the standpoint of the individual. It has been hard for the farmer to know where he is, because he did not know definitely whether he was making or losing, or how much. The lack of definite information on such matters has been a handicap . . . The hope of the future is the interest taken in these things, for such things as cow-testing associatiosn, and other record-keeping phases of farming, are already causing radical changes in farm practices. These things are making farming more successful. We have never yet seen a successful farmer who did not keep some kind of accounts giving in a nutshell the degree of his success.

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Three important points in management of bees at this time of year are providing a good supply of honey and pollen in each hive, having a young, vigorous queen, and allowing enough room in the hive for brood rearing.